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VIA HAND DELIVERY

William F. Caton
Acting Secretary
Federal Communications Commission
Washington, DC 20554

DOCKET FILE COPY ORIGINAL

Re: RM-9060 - Petition For Rulemaking to Amend ITFS Rules to Permit Two-Way Fixed Service

Dear Mr. Caton:

On behalf of Dallas County Community College District, Tarrant County Junior College District, Richardson Independent School District and Education Service Center Region 10 ("joint commenters"), we are submitting this correspondence with five copies to clarify the record with respect to points raised and addressed by the petitioners in their reply comments dated May 29, 1997, in the above-referenced proceeding.

The petitioners dedicated an entire section at pages 42 through 49 of their 50-page reply comments to address the interference concerns the joint commenters raised in their comments. While we appreciate that the petitioners sought to address our concerns, we want to point out that the concerns addressed by petitioners were not in each case the concerns advanced. Moreover, we do not wish the adequacy of the petitioners' proposal to be assessed solely on whether it subsequently and satisfactorily addresses the points we raised. Our comments were not intended to be inclusive, but rather to show that the proposal as disclosed is inadequate to be the basis of amended regulations.

Both the petition and the reply comments still do not address our fundamental concerns with technical disclosure. Rather, the reply comments lament that we

either "fail to appreciate" or have "fundamental misunderstandings" of the methodology or "as is typical," we "criticize, without advancing any indication of how the process was flawed or suggesting how the process could have been improved" (Reply Comments at e.g., 43, 44, 48). Rhetoric aside, the petitioners need to tell us what the "process" is.

In the Rationale[1] to the petition, the petitioners recognize that of "paramount importance in evolving the basis for such a far-reaching rulemaking is ensuring that the assumptions made and the techniques developed reflect reality" (Rationale at 2). They state: "This assurance of reality can only be achieved through extensive and thorough testing" (Ibid.). They advance the case that standards (as are typically developed for changes in permissible service regulations) are not appropriate for "closed systems" such as the proponent system (where the provider also supplies the system-specific reception equipment (Ibid. at 6)). Yet they recognize that since the technology to be used in providing service over these frequencies:

> will certainly develop over time and likely will include a variety of modulation schemes, a method for handling different modulation techniques, different modulation densities, different bandwidths, and similar technical differences should be built into the Rules as adopted

(Ibid. at 1). By the same token they admittedly limited their testing to establish, in effect, an interference base-line from which these various anticipated developmental variables (which are not proposed to be built into the Rules as adopted) must adhere (Ibid. at 2). Thus the results of the test of the five-mile cell in Tucson, Arizona, are proffered to provide the basis for regulations, nationwide, that will satisfactorily address interference considerations while prescribing the limits that will define the characteristics of all "output" systems irrespective of application.

We assert that there is not information in the record to ensure the adequacy of the test results for nationwide standards. First, there is no discussion of why Tucson, Arizona, is typical of the various service areas throughout the nation that

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[1]"Rationale for Two-Way & Distributed Transmission Operations of Wireless Cable Systems" accompanying the Field Test Report annexed to the Petition.

will be required to adhere to the interference constant the test results purportedly support. What co-channel and adjacent channel frequencies had to be protected, both within and outside of the "service area" for the Tucson test? Are they representative of the mutually exclusive scenarios in the New York City or in our Dallas-Fort Worth service areas? What accommodations have been undertaken to justify extending the results of the Tucson test to other markets? Why is the absence of terrain effects methodologically sound? Where the transmitter is located on a hilltop, is the solution simply to find the right transmitting power that will not exceed the 45 dB ratio?[2] If so, what assurances will adjacent co-channel service areas have that they will not experience intermittent interference while "output" system operators "hunt and peck" for non-interfering power levels? What assurances are there that non-interfering terrain-affected service areas will receive adequate service within the service area? Why hasn't the issue of foliage attenuation been addressed? Resolving foliage attenuation is a vexing problem for ITFS operations in many markets. It seems that Tucson was selected perhaps because it was the only test site available which, in turn, required the petitioners to rationalize that a foliage-free, flat terrain is the optimum assumption for establishing the interference criteria in their "methodology."

The Field Test only tested a "cellularization" of one five-mile cell (Field Test at 4). How does single or multiple transmitter sectorization behave both with wedge-shaped zones or and in conjunction with annular rings (Rationale at 10)? How does "sectorization" behave along with "cellularization" in a service area (Ibid.)? How does the "aggregation" method ensure the optimum system in determining intra- or and inter-service area adjacent cell operations (Field Test at 3)? (Sectorization behavior was not tested.) It appears that in the interest of expediency, petitioners have advanced what in their opinion is a "safe" level of 3 dB separation between cells, potentially precluding other perhaps more efficient techniques that could have been tested, much less considered or discussed. But this is only conjecture and will remain so until sample calculations have been provided.

Petitioners have sought to address methodology validation concerns by introducing into the record "spectrum analyzer output for each of the 13,056 data

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[2]The joint commenters assume that petitioners are maintaining a 0 dB protection ratio for adjacent channels.

files referenced at page 21 of the field test report" (Reply Comments at 43). It is not helpful to obfuscate the record or the Commission's processes with this level of granularity. What is required from petitioners is a summarization of these data. Petitioners should supply, for example, high, low and median levels of the receive signal measured at each measurement location in summary form with a sample of the data files and calculations showing how they achieved the summary results at each measurement location. Otherwise, the Commission and the public are expected to pour over 13,056 files of raw data to draw their own conclusions. Petitioners' insensitivity is hardly constructive and calls into question their ingenuity.

The petitioners trivialize their failure to disclose (or perhaps to even have considered) how the methodology underlying the field test accommodates the interference variable related to system traffic (Ibid.). Petitioners' "careful[] crafting" of the proposed rules "to avoid any need for the Commission to become involved in questions of system traffic" (Ibid.) hardly addresses the primary concern that the petitioners perhaps do not know and have not addressed the potential for interference to co-channel or adjacent channel third-party operations from different levels of use of the operating "output" system.

Rather, the petitioners contend that traffic "analysis is of no moment for purposes of predicting interference" (Ibid.).[3] Instead, they rely solely on maintaining the 45 dB interference ratio as the safety net, leaving the interference occasioned by miscalculating the effect of system traffic and other interference-based variables unaddressed, and presumably unassessed, to be worked out in the particular service area market by field engineers with varying levels of qualifications and experience. Presumably, petitioners are saying that they will make their system perform interference-free on a market-by-market basis with no assurance that an interference-free system is the optimum, much less an adequate, system under a proposed regulatory regime encumbering all licensees that desire to utilize "output" technologies. We suggest getting it right using available predictive tools before regulations are promulgated.

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[3]The phenomenon of tradeoffs between system traffic and interference is well documented. See, e.g., Theodore S. Rappaport, Wireless Communications: Principles and Practice (Prentice-Hall, Inc. 1996) at pp. 417-431 (discussing CDMA).

By not considering traffic, the petitioners have consigned all to the loading they arbitrarily selected for the test. The only indication we have is the "maximum" number of simultaneous response station transmitters operated in the field test. Does that mean that only the simultaneous number of Tucson response stations per test area may be expected to operate interference-free? Must others installing their systems experiment to see if some other, higher maximum is sufficient or, based on locale-specific adjacent and co-channel operations, that some other, lesser maximum is the limit? In short, petitioners appear to be proposing rules that will require each output licensee to trial-by-error and hit-or-miss in procuring, installing and operating its system. There surely is some higher level of certitude available under the state-of-the-art of potential interference analyses.

In their reply comments petitioners reiterate that the "methodology" mandates the performance of a "specific test that ensures that a sufficient number of points (a large enough sample size) is included in the grid definition" (Reply Comments at 45). There is a similar statement in the Methodology (Petition, Appendix C at 2) wherein the maximum number of points identified using the higher number from the RSA ½ mile or 5 degree measurements are plotted from which the grid of points is used to "statistically represent" the response stations. The Field Test similarly states that a "sufficient number of grid points must be chosen so as to be statistically representative of the distribution of return path transmitters within the cell" (Petition, Field Test at 3). Simply tell us to what extent the grid is statistically representative. What are the confidence levels? How can others determine that their grid points can be applied in the same manner as petitioners'? There is no defensible, discernable modeling scenario proposed.

By the same token, why are only residential data appropriate? Why is a uniformity of population test required by the methodology (Reply Comments at 45 n.86)? What tradeoffs have been made and how have they been assessed by consigning a uniformity of population requirement? What are the effects of ignoring business use data on a market-by-market basis, such as number of business telephone lines per square block, commercial occupancy data, etc.? We do not see the basis for petitioners' assertion that U.S. Census data (residential) are a reliable indicator of the potential "maximum" simultaneous use to be expected in any given geographic area. Rather, the petitioners appear to have arbitrarily understated system capacity requirements by not relying on business use data which will more

accurately predict maximum use scenarios for each service area and, indeed, in any given cell or sector. The result appears to be a methodology that skews the number and size of cells at the outset, requiring system designers to second guess their cell numbers and sizes. By the same token, field engineers will be forced to undertake extensive post-design modifications that will result, for example, in more and smaller-sized cells than the methodology would indicate. The methodology should provide both designers and field engineers with a more reliable indication of what is the likely potential traffic at the design stage to avoid wasteful modifications and inaccurate predictions of the potential for interference.

The petitioners readily admit that it is "impossible" to craft a set of technical rules that will result in "optimal [Sic.] spectral efficiency in most cases" (Petition at 34). Yet they do not attempt to utilize available methodological tools to approximate potential interference and to address that potential interference other than a vague promise that interference ratios will not be exceeded. We think that the alleviation of potential interference issues should not be left to the field engineers, but should be incorporated into realistic, supportable assumptions and addressed satisfactorily in the development of the technical standards under which the field engineers must operate, leaving the unforeseen locale-specific issues to field resolution. It makes no sense, for example, to authorize fixed two-way service based on "maximum" simultaneous use assumptions based solely on residential data if the result is to erect a capacity-constrained system in order to avoid interference.

The aggregation summation principle for accounting for simultaneous multiple cell operations in a single service area is presented without sample calculations. Why not provide sample calculations instead of deferring to such terms as "basic engineering steps" (Reply Comments at 47) or referring to such vagaries as "normal propagation and interference analysis tools" (Ibid. at 46)?

Petitioners suggest circuitously that their "validation analysis" can be replicated by following the four corners of the Methodology and the technical parameters specified in the Field Test (Reply Comments at 47). Yet they still decline to provide us the identity of the tools they used. They say that the undisclosed software are "standard commercial software packages" (Ibid.). Respectfully, there are no "standard" packages. They mention a package "known intimately by many engineers in the wireless industry and at the FCC" (Ibid. at 48).

Such crypticness is not called for. Which of several EDX Engineering packages did they use? Instead of only loading the record with 13,000 data files, the petitioners could also supply for the record the Microsoft Excel spreadsheet they used in their validation analysis. Otherwise we are still in the dark. How can we know if we are indeed replicating the petitioners' results if we cannot see the interim calculation results for each grid point (See Ibid. at 47)?

The petitioners apparently have gathered their field strength data a priori. They used "industry-standard techniques" (Ibid. at 48). What standard? Were they looking at peak power or average power and what time and/or location intervals? They utilized a spectrum analyzer, receiving antenna and amplifier which they state is a "standard way of measuring field data in this industry" (Ibid.). We submit that there is no "standard" for this industry. There may be common practices, but that hardly elevates to an assurance of uniformity. There must be disclosure and articulation of the method used to perform the measurements.

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One non-technical aspect the petitioners advance is that the joint commenters "appear to propose that licensees should be barred from consenting to interference that would otherwise be prohibited by the Commission's rules" (Reply Comments at 35). Petitioners misstate our position. In their petition they contemplated that "neighboring licensees will usually negotiate in good faith...and enter into private agreements governing the use of their spectrum, and that such private agreements will supersede the Commission's Rules" (Petition at 34, emphasis added). The joint commenters, in their comments (at page 9, n.3) questioned the Commission's authority to defer to private agreements with preemptive effect. Consents are contemplated under the Commission's current rules. The joint commenters object to extending the principle to affect third parties to such a consent agreement or where service has been so hampered that the licensee is not able to fulfill its duties to the public. We believe these principles are inherent in any consent arrangement and that the Commission retains jurisdiction over such agreements consistent with its statutory mandate. The petitioners have misstated our comment.

The joint commenters support the concept of two-way fixed ITFS service if it can be accomplished without interference from the output licensee. We think the

petitioners have undertaken a large task and have made considerable but insufficient headway to support the amendments to the regulations they are seeking. Their proposal needs more work (including testing) and disclosure. We think that any rule amendments by which two-way fixed service is permitted in the ITFS frequencies be by public, not negotiated, rulemaking. The ITFS spectrum has been utilized by educational institutions for more than 30 years. Wireless operators now have significant excess capacity over ITFS frequencies further utilizing the spectrum to capacity, nationwide. We think that the Commission can best oversee amended service rules through open rulemaking. A negotiated rulemaking will be dominated by private interests and will likely leave the educational community and the public it serves under-represented in terms of both time and resources. Owing to the particular public nature of ITFS service and the additional pressures on ITFS licensees to succumb to expediency as more and more of them become wireless cable operator lessors, a negotiated rulemaking is not in the public interest.

Although the ex parte regulations are not implicated in petitions for rulemaking proceedings, we have served a copy of this correspondence on the parties of record.

Very truly yours,

James E. Meyers

Counsel for:
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Tarrant County Junior College District;
Richardson Independent School District;
Education Service Center Region 10

cc: Michael J. Jacobs (By Hand, 2033 M Street, N.W., Suite 600)
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Per Attached Service List

CERTIFICATE OF SERVICE

I, James E. Meyers, hereby certify that on this 21st day of July, 1997, I served by U.S. Mail, postage prepaid, the foregoing and annexed correspondence upon the following:

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